

CLAIMS:

1. An apparatus for imaging a tissue region, comprising:
a polarized light emitter operable to emit light having a wavelength and a first polarization direction to the tissue region;
a light detector operable to detect light remitted from the tissue region having said first polarization direction and light remitted from the tissue region having a second polarization direction perpendicular to said first polarization direction; and
an analyzer operable to form a difference image from a difference between said detected light having said first polarization direction and said detected light having said second polarization direction,
whereby a depth of said image at or from the surface of the tissue region is determined in accordance with said wavelength.
2. The apparatus according to claim 1, whereby said wavelength is in a range of 200 nm and 2000 nm.
3. The apparatus according to claim 1, whereby said wavelength is in a range of 390 nm and 750 nm.
4. The apparatus according to claim 1, wherein a contrast agent is applied to said tissue region.
5. The apparatus according to claim 1, wherein said wavelength is varied to form a plurality of images at different depths.
6. The apparatus according to claim 5, wherein each of said plurality of images is in a range of 1 μ m to 3 mm from the surface of the tissue and wherein said range is determined by a spectral range of the light employed and by optical properties of the imaged tissue.
7. The apparatus according to claim 5, wherein said analyzer creates a pseudo-3D image using said plurality of images formed at different depths.
8. An imaging method for imaging a tissue region comprising the steps of:
emitting light having a wavelength and a first polarization direction to the tissue region;

detecting light remitted from the tissue region having said first polarization direction and light remitted from the tissue region having a second polarization direction perpendicular to said first polarization direction; and

forming a difference image from a difference between said detected light having said first polarization direction and said detected light having said second polarization direction, whereby a depth of said image at or from the surface of the tissue region is determined in accordance with said wavelength and optical properties of the imaged tissue.

9. The imaging method of claim 8 further comprising the step of applying a contrast agent to the tissue region.

10. The imaging method of claim 8, whereby said wavelength is in a range of 200 nm and 2000 nm.

11. The imaging method of claim 8, whereby said wavelength is in a range of 390 nm and 750 nm.

12. The imaging method of claim 8 further comprising the step of varying the wavelength to form a plurality of images at different depths.

13. The imaging method of claim 12, wherein each of said plurality of images is in a range of 1 μ m to 3 mm from the surface of the tissue, and wherein said range is determined by a spectral range of the light employed and the optical properties of the tissue.

14. The imaging method of claim 12 further comprising the step of creating a pseudo-3D image using said plurality of images formed at different depths.

15. An apparatus for imaging a nonmelanoma skin cancer, comprising:
a polarized light emitter operable to emit light having a wavelength and a first polarization direction to the nonmelanoma skin cancer;

a light detector operable to detect light remitted from the nonmelanoma skin cancer having said first polarization direction and light remitted from the nonmelanoma skin cancer having a second polarization direction perpendicular to said first polarization direction; and

an analyzer operable to form a difference image from a difference between said detected light having said first polarization direction and said detected light having said second polarization direction,

whereby a depth of said image at or from the surface of the nonmelanoma skin cancer is determined in accordance with said wavelength.

16. An imaging apparatus comprising:

means for obtaining a first image of a tissue using a predetermined wavelength and a first polarization direction;

means for obtaining a second image of said tissue using said predetermined wavelength and a second polarization direction perpendicular to said first polarization direction; and

means for forming a difference image from said first image and said second image,

whereby a depth of said difference image at or from the surface of the tissue is determined in accordance with said predetermined wavelength.

17. An imaging method comprising the steps of:

obtaining a first image of a tissue using a predetermined wavelength and a first polarization direction;

obtaining a second image of said tissue using said predetermined wavelength and a second polarization direction perpendicular to said first polarization direction; and

forming a difference image from said first image and said second image,

whereby a depth of said difference image at or from the surface of the tissue is determined in accordance with said predetermined wavelength.